

WE CLAIM

1. A method of making a preform for an enhanced photosensitive fiber comprising
the steps of:

5 depositing successive layers of optical material the inside a tube using
modified chemical vapor deposition; and
collapsing the successive layers of optical material in a reducing
atmosphere with a positive pressure.

2. A method according to claim 1, wherein the positive pressure is
0 to 1.0 torr.

10 3. A method according to claim 2, wherein the positive pressure is
0 to 0.5 torr.

4. A method according to claim 3, wherein the positive pressure is
0.2 to 0.4 torr.

15 5. A method according to claim 1, wherein the reducing atmosphere
comprises GeCl_4 .

6. A method according to claim 5, wherein the reducing atmosphere
further comprises at least one of He, Ar, CO, COH and 2-propanol.

7. A method according to claim 1, wherein the optical material is
doped with Ge.

20 8. A method according to claim 7, wherein the optical material is
co-doped with boron.

9. A method of making an enhanced photosensitive fiber
comprising the steps of:

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making a preform using modified chemical vapor deposition wherein the preform is collapsed in a reducing atmosphere with a positive pressure; and drawing the preform into a fiber.

10. A method according to claim 9, wherein the positive pressure is
5 0 to 1.0 torr.

11. A method according to claim 10, wherein the positive pressure is
0 to 0.5 torr.

12. A method according to claim 11, wherein the positive pressure is
0.2 to 0.4 torr.

13. A method according to claim 9, wherein the step of drawing is
conducted with a tension of 100 g to 250 g.

14. A method according to claim 13, wherein the step of drawing is
conducted with a tension of 150 g to 200 g.

15. A method according to claim 14, wherein the step of drawing is
conducted at a temperature of 1950 C to 2100 C.

16. A method according to claim 15, wherein the step of drawing is
conducted at a temperature of 1980 C to 2050 C.

17. A method of making a fiber grating comprising the steps of:
providing an enhanced photosensitive fiber made according to claim 9;

20 and

exposing the enhanced photosensitive fiber to ultraviolet light to form a grating pattern.

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18. The method of claim 17, wherein the step of exposing is completed within 15 minutes.

19. The method of claim 18, wherein the step of exposing is completed within 5 minutes.

5 20. The method of claim 19, wherein the step of exposing is completed within 1 minute.

21. The method of claim 20, wherein the step of exposing is completed within half a minute.

22. The method of claim 17, wherein the grating pattern forms a fiber Bragg grating.

23. The method of claim 17, wherein the grating pattern forms a long period fiber grating.

24. The method of claim 17, wherein the grating pattern forms a laser stabilization grating.

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24. The method of claim 17, wherein the grating pattern forms a laser stabilization grating.